

ENVIRONMENTAL ASSESSMENT

FOR

A Surface Special-Use Limestone Mine

By

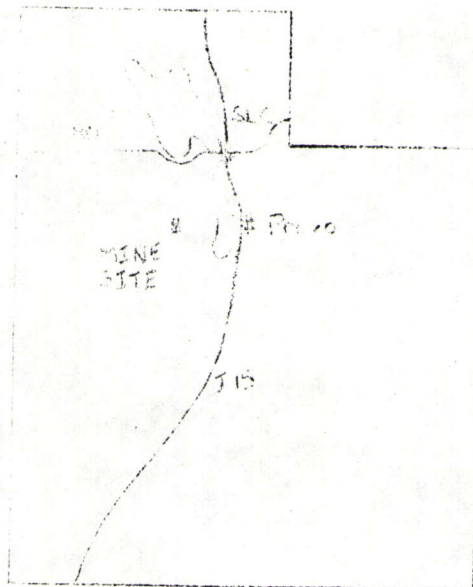
R.D.M. & S. Partnership

WHITE ROCK MINING CLAIMS #1 Through #10

Sec. 33, T. 8 S., R. 3 W.

Sec. 4, T. 9 S., R. 3 W.

TOOELE & UTAH COUNTIES, UTAH



Prepared by: The Division
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DESCRIPTION OF PROPOSED ACTION:

RDM&S, a Utah partnership, proposes to conduct surface quarrying of low-silica, special use limestone to be used for rock dusting in underground coal mines and in stack emissions scrubbing for coal-fired boilers. The mine site lies within current mining claims for low-silica limestone in Sections 33 & 34, T. 8 S., R. 3 W., SLMB, Tooele and Utah Counties, Utah. The claims are known as the Whiterock #1 through #10 claims and cover approximately 200 acres. The applicant proposes to remove limestone from the surface of a dip slope to a stratigraphic depth of 90 feet. The applicant will begin operations by topping the slope, and will then mine downslope utilizing a benching procedure to remove the desirable limestone.

The limestone thus mined will be transported to the bottom of the hill where it will be crushed to minus 200 mesh, bagged and loaded onto trucks for shipping. It is estimated that the duration of mining activity would be 30 to 50 years.

ALTERNATIVES TO PROPOSED ACTION:

(1). No action - With no development there would be no adverse impacts, nor would there be financial returns in the form of taxes and multiplied income to the county or State.

(2). Obtain limestone elsewhere - Three major factors make the proposed minesite favorable and economically sound.

A. The occurrence of relatively uncommon low-Silica limestone which meets requirements for rock dusting and stack scrubbing.

B. The occurrence of the limestone at the slope surface and the structural environment allow removal with the least overburden handling and greatest efficiency.

C. The location of the proposed mine near the back haul route of empty coal trucks returning to coal mining areas near Price, Utah, makes haulage of the limestone economically feasible.

(1). Physical Environment

A. Climate - The proposed mine site is located on a west facing slope in Bell Canyon in the northern end of the Tintic Mountains. The elevation of the mine site ranges from 5750 feet to nearly 6400 feet above meansea level, and the area receives from 12 to 14 inches of precipitation per year, most of which falls as snow during the winter. Temperature ranges from 100+ degrees during the summer months to below zero during the winter. Most of the summer precipitation is received during short, rather violent storms.

B. Soils - The soils over most of the proposed mine site are very thin, 2"-6", and occur primarily in pockets and depressions on the weathered limestone base. Near the base of the slope, alluvial and colluvial debris has accumulated to depths of up to ten (10) feet. The soil is primarily weathered limestone residuum, lacks distinct zonation, and is poor in organic material.

C. Geology - The proposed mine site is located on the western flank of a generally North - South trending anticline. The strata exposed in the area dips generally to the west at an inclination of approximately 30 degrees, which attitude is subparallel to the slope surface. The economic units exposed are the Mississippian Gardison Limestone and the upper 90 feet of the Mississippian Fitchville Formation. Both units are finely crystalline lithographic limestone, with rare cherty partings. The units are massive in structure, with the exception of infrequent jointing. The surfaces of both units are extensively weathered and exhibit solution pitting and channeling.

D. Hydrology - Surface water in the proposed mine area is drained by an intermittent stream in the bottom of Bell Canyon which flows out of the canyon and into the alluvium at the edge of Rush Valley. Most precipitation and snow melt percolates into the sparse soils and flows downhill along the contact between the soil and the

underlying limestone. The limestone units are practically impermeable, except for slight fracture permeability, and act as aquifers. During periods of exceptionally high precipitation overland flow may temporarily develop.

E. History & Archaeology - No historically nor archaeologically interesting features were noted during field observations by the Division staff. However, more detailed examination by qualified investigators may be desirable.

(2). Biological Environment

A. Flora - The vegetative community of the area to be mined is typical of the sagebrush/pinyon-juniper transition zone of the eastern slopes of Rush Valley. Observations in the area revealed a variety of plants present in varying quantities. The southwest exposure of the area to be mined makes the slope a relatively harsh environment for the establishment, growth and reproduction of plants but all of the following were observed on the slope: Singleleaf Pinyon, *Pinus monophylla*, Utah Juniper, *Juniperus osteosperma*, Stansbury Cliffrose, *Cowania stansburiana*, Big Rabbitbrush, *Chrysothamnus nauseosus*, Big Sagebrush, *Artemisia tridentata*, Green ephedra, *Ephedra viridis*, Indian Ricegrass, *Oryzopsis hymenoides*, Western Wheatgrass, *Agropyron smithii*, and prolific annual cheatgrass - *Bromus tectorum*.

B. Fauna - Animal use of the area being mined is varied, and mostly seasonal. Domestic livestock (sheep & cows) graze the area as part of their winter range. The Bureau of Land Management estimates that this allotment is able to provide forage at the rate of eleven (11) acres per AUM on the average. In other words, eleven acres of this type of range will support one cow or five sheep for one month.

The dominant use of the mine area by wildlife is as winter range by mule deer. However, cottontail and jack rabbits, crows, and both golden and bald eagles are somewhat dependant upon the proposed mining area for habitat and/or food.

C. Human - No signs of past or present permanent human habitation were observed within one mile of the proposed mine. Several old hardrock mine shafts have been excavated in the general vicinity. The minesite is located very close to the Tintic Mining District so that mineral exploration has no doubt occurred here for many years. General recreation and hunting are probably the major activities to which Bell Canyon is currently being put to use.

IMPACTS:

(1). Land - Surface disturbance will be the major impact of mining on the proposed location. All regolith and soil materials will be removed, and 90 stratigraphic feet of limestone will be stripped from an area of approximately 95 acres. In addition, an approximately 15 acre pad will be leveled for crushing, bagging, and loading facilities and another 20 acres will be used for storage of waste rock and overburden. Existing access roads will be leveled and widened to two lanes to permit two-way haulage traffic. Approximately $1 \frac{1}{4}$ miles of new tram road will be constructed from the canyon bottom to the ridge top.

(2). Water - Large, barren rock slopes will be subject to slope wash. Waste rock and overburden could obstruct drainage if not properly handled. Precipitation draining over and through limestone debris will dissolve the calcium carbonate, hardening the water considerably. No water will be discharged from the mine or ancillary facilities.

(3). Air - Air quality in the area immediately adjacent to the mine operation may be degraded by exhaust from diesel trucks and machinery, by lime dust produced by blasting and crushing, and by dust raised by vehicular traffic.

(4). Biological - Mining in the proposed area will devegetate approximately 100 acres of deer winter range and small mammal habitat. Blasting and other mine activities will probably drive most wildlife from the immediate mine area. The area is also marginal domestic livestock range. Hunting will be poor in the immediate mining area for the duration of the operation.

(5). Socio-economic - Socio - economic impacts will be small. The number of employees at the mine will be between six (6) and ten (10). The tax base of Tooele County will be increased.

MITIGATIVE MEASURES:

(1). Land - During removal of rock from the proposed mine site 20 foot wide horizontal or slightly insloped benches will be left every 200 feet of slope distance. The Division will inspect these benches periodically throughout the mining operation to determine whether or not a suitable growth medium is accumulating through weathering and debris accumulation. If, after five (5) years after the initiation of mining, no material has accumulated on the first upper benches, the operator will be required to introduce soil and/or alluvium onto the benches to support stabilizing vegetation. The benches will also serve to diminish slope wash and falling debris. The locations of ancillary facilities and waste rock will be graded to approximately their original contour and be fertilized and planted for stability. All machinery and debris will be removed from the site at the conclusion of operations.

(2). Water - In order to disrupt the natural flow regime as little as possible, stock piles, waste piles and ancillary facilities will be located so as to avoid drainage channels, and roads will cross channels at right angles and be equipped with culverts. As previously mentioned benching will be used to minimize slope wash and associated erosion on the mined slope. No water will be discharged from the crusher or other machinery.

(3). Air - Dust control measures such as watering and screening will be applied to all crushing and hauling operations. Dust produced by blasting is difficult to control, but it is relatively small in amount and is intermittently produced. Exhaust emissions from diesel trucks and machinery will be controlled as good maintenance procedures dictate.

(4). Biological - Five years after the initiation of mining activities, the Division will make a determination as to whether sufficient plant support materials have accumulated on the first upper benches. If insufficient material is present, soil and alluvial material will be spread to a depth of 4 to 6 inches, fertilized as specified by the Division, and seeded or planted on waste rock areas and facilities locations. The purposes of revegetation are twofold:

A. To physically stabilize the mined slope, waste and facility areas.

B. To provide for an eventual future use on the rock face. In this case, the eventual future use will be range for wildlife and domestic livestock.

(5). Socio economic - Hunting is the primary recreational use of the proposed mine stie. Revegetation at the conclusion of mining operations will provide some winter range for deer and it is anticipated that hunting activity will resume. The project has been endorsed by Mr. James R. Palmer, Tooele County Commissioner, who states: "We feel this (project) is compatible with other mining operations within the geographical area".

SHORT TERM vs. LONG TERM EFFECTS:

The primary short term effects are disruption of the land surface, devegetation, displacement of indigenous wildlife, and a temporary financial benefit to Tooele County.

Long term effects are difficult to assess, but in such an area it will probably include slow revegetation, slow rehabilitation by wildlife, and many years of weathering to return the barren rock face to its present appearance. The reclamation procedures outlined are designed to speed these processes, but complete return to the present state will be a long term process.

IRREVERSIBLE & IRRETRIEVABLE COMMITMENTS:

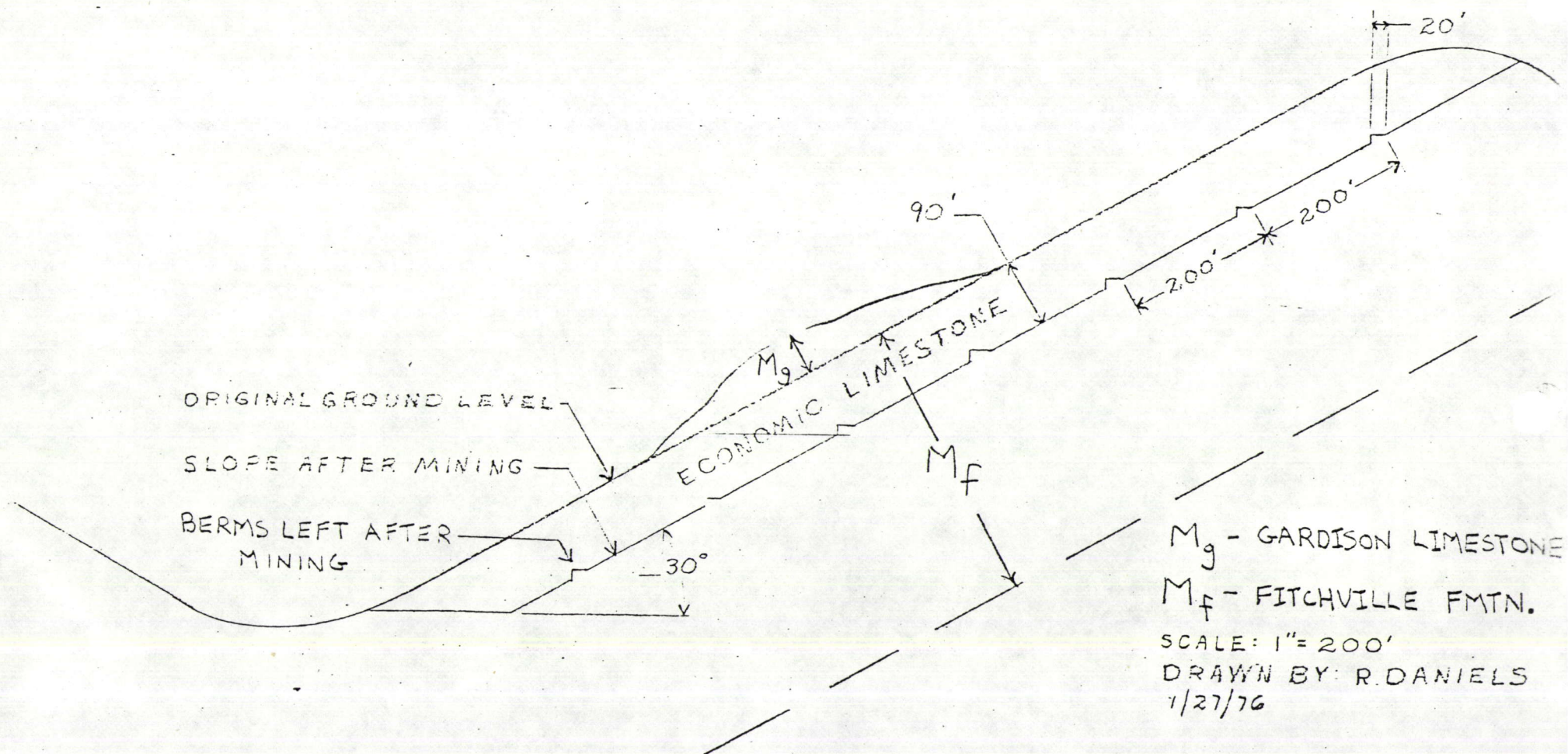
The primary irretievable commitment will be the removal of the limestone. Water and air impacts will diminish quickly. With successful regrading and revegetation, ecological stabilization should occur within three growing seasons.

COMMENTS:

Because of the low dollar value of limestone as a mined product, details of the operation such as location, mining method and haulage must be carefully analyzed if a profit is to be realized. Discussions with the operator occurred over a period of several months in order to

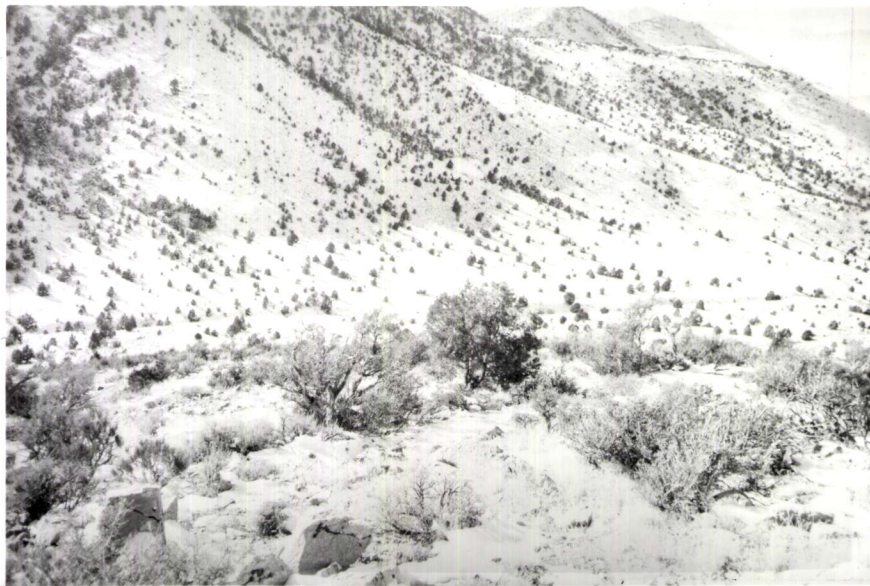
arrive at a reclamation plan compatible with the mining methods and effects. The main area of concern is the slope on which mining is to take place. A barren limestone slope from 25 degrees to 35 degrees has little if any chance of returning to its original condition within a lifetime, especially in a desert environment where weathering and precipitation are slight. The objective of the reclamation plan is to provide a medium for revegetation and physically stabilize it on a rock slope. Benching is the most practical alternative.

TYPICAL CROSS SECTION
R.D.M. & S. SURFACE LIMESTONE MINE
TOOELE AND UTAH COUNTIES - UTAH





View of proposed minesite looking east from Rush Valley. Dotted line roughly outlines proposed mining area.



Looking west from proposed mined slope. Foliage is of Pinyon-Juniper community.



Pit exposing soil profile typical of the lower portions of the proposed mined slope.



View of nearby abandoned limestone quarry showing 150 foot highwalls.